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Experimental Basosquamous Carcinoma Model in Rats

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Abstract

© 2016, Springer Science+Business Media New York.Previous studies have established that 7,12-dimethylbenz(a)anthracene (DMBA) can initiate skin tumorigenesis in conventional furred mouse models by acting on hair follicle stem cells. In this work, we have developed a simple and convenient rat model of basosquamous carcinoma (BSC) using DMBA-induced carcinogenesis in male specific pathogen free (SPF) Wistar rats with no additional tumor promoter agents. The results showed that topical application of 0.1% solution of DMBA in benzene in a volume of 40 µL twice a week produced skin tumors after 8–9 months. As a result, during the 11–12th months, we obtained 15 animals with BSCs, 22 with basal cell carcinomas (BCCs), and 3 with squamous cell carcinomas (SCCs). This chemically driven skin cancer model in Wistar rats can serve as a suitable alternative to the mouse skin cancer model and can be reliably replicated as demonstrated by the experiment.

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Keywords

Basosquamous carcinoma, Chemical carcinogenesis, DMBA, Rat model

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